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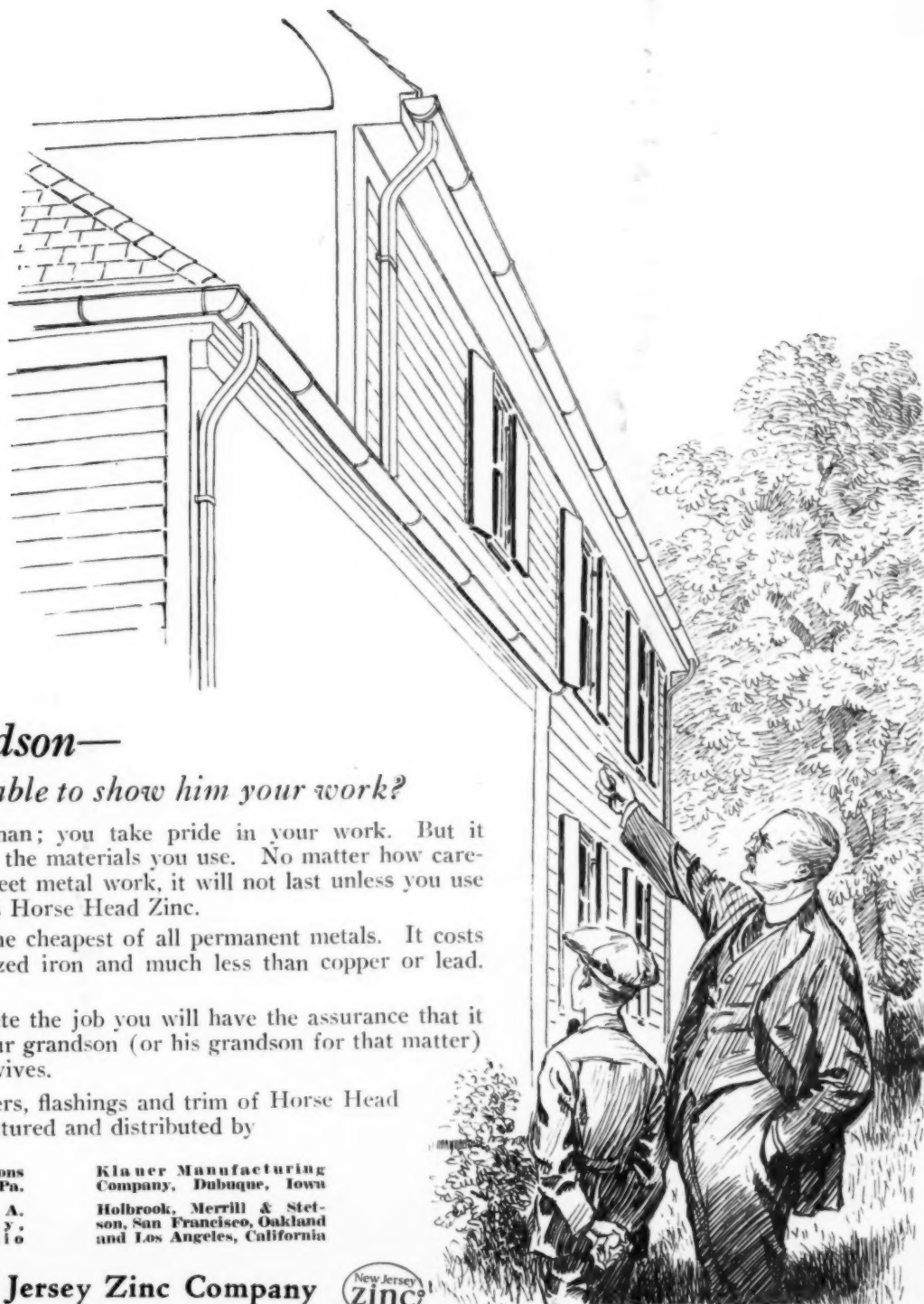
American Artisan *and* Hardware Record

Sheet Metal—Roofing—Warm Air Furnaces—Stoves

Vol. 88. No. 25

CHICAGO, DECEMBER 20, 1924

\$2.00 Per Year



Your Grandson—

Will you be able to show him your work?

You are a true craftsman; you take pride in your work. But it can never be better than the materials you use. No matter how carefully you install your sheet metal work, it will not last unless you use material as permanent as Horse Head Zinc.

Horse Head Zinc is the cheapest of all permanent metals. It costs little more than galvanized iron and much less than copper or lead. It is easy to sell.

And when you complete the job you will have the assurance that it will be there to show your grandson (or his grandson for that matter) if the building itself survives.

Conductor pipes, gutters, flashings and trim of Horse Head Rolled Zinc are manufactured and distributed by

David Lupton's Sons
Co., Philadelphia, Pa.

The J. M. & L. A.
Osborne Company,
Cleveland Ohio

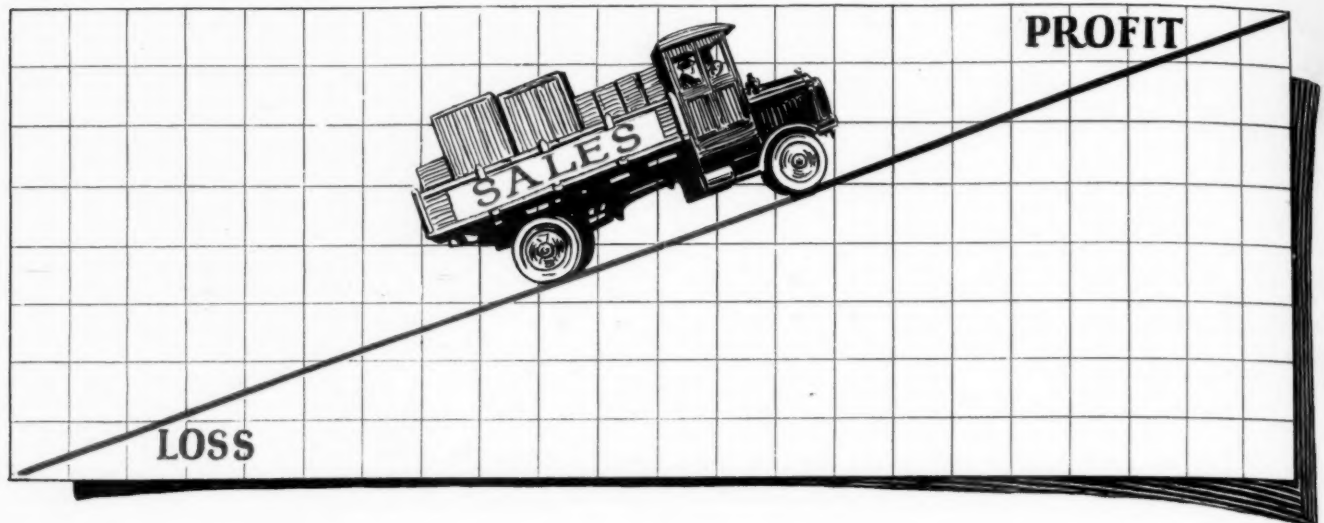
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Holbrook, Merrill & Stet-
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and Los Angeles, California



The New Jersey Zinc Company





You'll Make the Grade with MUELLER

To make money in the heating business you must have a line of good heating equipment—one that is complete in sizes and types, with exclusive selling features, and affording complete satisfaction to the user in service.

Mueller warm air furnaces (both pipe and pipeless), Mueller registers, pipe and fittings constitute such a line. And 67 years of "knowing how" is built into each Mueller product.

But your success requires, in addition, sales co-operation from the manufacturer that will enable you to **sell more heating plants, and make more profit per job!**

Mueller sales co-operation includes all the usual forms of advertising service, **plus** free engineering service and special selling stunts developed for the exclusive use of Mueller franchise dealers.

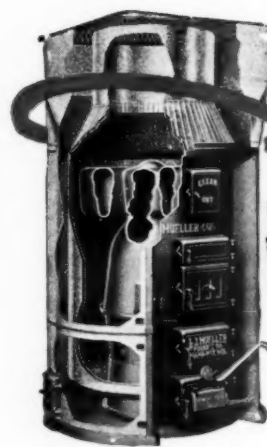
In our files are interesting letters telling about surprising results secured by using the selling helps provided under the Mueller sales plan—helps that are available for **you** if you are the **right dealer**.

Let us tell you how you can make the grade to greater profits with Mueller! Write for details.

L. J. MUELLER FURNACE CO.
193 REED STREET MILWAUKEE, WIS.

*Makers of Warm Air, Steam, Vapor and
Hot Water Heating Systems, Registers,
Pipe and Furnace Fittings.*

Branch Warehouses: Brooklyn, Boston, Baltimore, Detroit, St. Louis,
St. Paul, Minneapolis, Salt Lake City, Seattle.



Convactor—the Mueller heating system without pipes. Straight air passages—gentle circulation. 100,000 satisfied users.



Mueller Double Radiator Furnace—a self-cleaning, warm air furnace with more direct heating surface than any other furnace of equal size fire-pot.



MUELLER FURNACES

— dependable heat —
easier to sell than to sell against

Published to Serve
the
Warm Air Furnace,
Sheet Metal, Roofing,
Stove and Hardware
Industries

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EDITORIAL AND ADVERTISING STAFF

A. G. Pedersen

Etta Cohn

J. F. Johnson

Frank McElwain

Franklin Butler

G. J. Duerr

Eastern Representative: W. C. White, 1478 Broadway, New York City

Vol. 88

CHICAGO, DECEMBER 20, 1924

No. 25

Christmas—Thursday and Every Day

TO some men Christmas means little or nothing.

To some it means receiving of gifts.

To many it means a season of giving and of joy in giving.

We believe that the average man takes more real pleasure in giving than in receiving.

Of course, he is glad to receive gifts, because they are an expression of the friendship and goodwill of the givers.

But there is something about the act of giving which warms the man who gives, which makes him look with favor upon the world, which makes him feel good within himself.

And it is only natural that it should be so, for when you come down to "brass tacks" the chief end of man is to serve the world and to glorify God.

And we can do the latter only by doing the first. The two go together. One cannot be without the other.

So, after all, the Christmas Spirit is nothing but a more marked expression of our every-day attitude toward one another.

The man who maintains that he can paddle his own canoe, that he has no obligations toward his fellow man, naturally does not see much or anything in Christmas.

The man who is always on the receiving end and never on the giving end soon wears out his welcome and before long enters the class of those just mentioned.

It is the man who takes pride and pleasure in serving others that makes the world a more decent place than it was; that makes conditions better for all; that makes progress possible.

For progress is never made without sacrifices of some sort on the part of somebody, any

more than a battle can be won without the loss of somebody's life. And a battle, in order to be won, requires every man to do his particular share of the fighting according to and under the direction of those in position to know the general plan of attack; a good soldier is one who realizes that his first duty is to obey orders and carry them out in an intelligent and whole-hearted manner.

In ordinary life, as business men, we must have organization of a little different type. Co-operation, here, is a matter of choice, but the good business man, the good citizen, is willing to sink some of his own preferences in order that the common good may be served.

So we are thankful that most of us belong in the class of givers—both at this Christmas time and at any other time.

Because it indicates to us that the average man is really willing and glad to make sacrifices and to give of his time and thought and money toward making somebody's life more pleasant.

And it is safe to say that as this spirit of giving rather than of wishing to receive becomes more general this old world of ours will be a better place for all of us to live in.

And speaking from our own experience we are also glad to say that the better service one renders and the more one is willing to give of himself for the advancement of the common good the more he will also prosper.

We have no desire to preach a sermon here. What we have said is simply taken from the book of life as we see it.

And now, let us wish you the Merriest Christmas you have ever enjoyed. May you live long and prosper in the service of your fellowmen.

Random Notes and Sketches.

By Sidney Arnold

During the "Start Something Hour" of the Western Warm Air Furnace & Supply Association's recent annual meeting in Chicago, E. L. Jaynes, of the Northwestern Furnace & Supply Company, told the story of "Golden Rule" Nash, the clothing manufacturer in Cincinnati, and his recital was so full of good points that I made up my mind to publish it as nearly complete as I could on this page.

So here we go:

It seems that this man Nash had been a traveling salesman for a clothing concern, making a fair living and putting a little by for the proverbial rainy day. But he was not making any real progress, and he could not see any prospects ahead of him if he stayed "on the road."

After much study and looking around, he bought a clothing sweatshop in Cincinnati in partnership with another man, and set out to make men's suits to retail at a low price.

But things did not go well. His partner got cold feet and had to be bought out, which made it still more difficult for Nash to make ends meet, and there came a time when he thought that in a few months his business must fail.

Without consulting any of his friends or business associates he entered the workrooms one morning and told the foreman to have everybody stop work and to gather around him, as he had an important announcement to make.

He said nothing about the condition of his business, but told them that from now on he was going to treat them as he wanted to be treated by them. He called an old woman who had been earning, at the most, \$4.00 a week and said that her pay would be \$20.00 a week, so long as the business was kept going. Other employees had

their earnings advanced in similar manner.

Without further comment he left them and boarded a train for a Michigan camp where he stayed awaiting the crash which he fully expected to come in a few weeks. He had instructed his office force not to write him unless something really important should happen.

Weeks and months went by without any word being sent to him, and finally he could stand the suspense no longer, so he returned to Cincinnati.

Entering his office early the next day he was surprised to note the busy and contented appearance of the employees. The machinery in the shops was humming away at a great rate and everywhere there was evidence of busy but ordered activity.

Nash asked the bookkeeper how things were going. He answered fine and handed him the bank book where a balance of many thousands of dollars was shown, as compared with the small sum that had been on deposit when Nash left.

Bewildered but pleased he walked out into the shops. Smiles greeted him. The machines ceased their humming and the men and women crowded around him to bid him welcome home again.

Calling some of them into his office he asked them how it had all happened.

"You remember," said one of the men, "that you told us the day you left, that so long as the business was kept going you were going to treat us as you would want to be treated by us, and that you raised our wages to a point where it was really worth while for us to work?"

"Well, that was the turning point for us. We made up our minds that there was another side to that matter—our side—so we pitched in, and the result is that our output

per man is far larger and the character of the work is far better, all of which means that the business has changed from a hand-to-mouth basis to a real prosperous, growing condition."

Mr. Nash's business, I understand, is today one of the outstanding successes in the clothing field. His employees—if such they may be called for the great majority of them are stockholders—work with him rather than for him.

I sometimes wonder if some of us in our pursuit of success do not forget that true success can be built only by rendered whole-hearted service to those with whom we deal.

If there is anything in this story of "Golden Rule" Nash, it seems to me that it must be something like this:

"The man who takes money from another man—be it for work performed or for merchandise sold—owes it to that man to give him a full dollar's value for the dollar he asks and receives, and whenever he fails to give that value he is just as much a thief as the man who steals money or goods from another."

Or, putting it in another, and perhaps a better, way:

"Render good service, do honest work, sell reliable goods—and you will receive in addition to your just pay also the good-will and commendation of your customer or employer—and that is the true basis for your growth in success."

* * *

Lost, Two Eyes. It is one of the trite tragedies of advertising. The reader's eyes are lost to you when your advertisement is dwarfed by giant neighbors, who rob it of light, liberty and the pursuit of currency. Yet, as the diamond among rhinestones gathers a deeper beauty and a more fulgent flame from its drab environment, so the advertisement properly set shines the more brilliantly by contrast. You are always richly repaid for the price you may pay for Insurance Against Lost Eyes.

air pipe required for second floor at zero.

$7.68 \times 5 = 39$ square inches warm air pipe required for third floor at zero.

For 20 degrees below zero add one-seventh, or 14 per cent.

The result thus obtained is the number of square inches of basement warm air pipe required to heat the room comfortably at a register temperature of 175 degrees.

Having determined the heat requirement for each room lay out your basement pipes, so as to provide sufficient pipe area for each room.

Use no warm air pipe less than 8 inches in diameter.

Basement runs, except in deep basements, should not exceed 12 feet in length and should pitch upward from the furnace at least one inch to the foot. Exceptionally short runs may be slightly under capacity. Long runs should use one size larger pipe than otherwise required. Avoid sharp turns and do not run warm air pipes through cold rooms, or past open or broken windows without boxing and insulating thoroughly. Do not permit pipe to touch masonry. Pipe joints in basements should be soldered and stripped with asbestos paper. Registers may be side wall or floor registers and suitable register boxes, boots, angles, etc., must be used to maintain the free area of pipes throughout.

Registers and wall stacks should always be on inside walls.

Second floor rooms may be heated through stacks in walls connected through boots to basement pipes, or taken off tops of first floor side wall register boxes. On account of increased velocity in upright stacks, these stacks may have 30 per cent less area than basement leader pipes.

It is rarely possible to thoroughly heat two upstairs rooms through one stack unless the rooms are very small. When a single wall stack is used it must be carefully wrapped with asbestos paper.

The location of furnace shall equalize the length of warm air runs as far as possible, yet giving neces-

sary preference to pipes supplying rooms mainly used. A suitable level brick or cement foundation should be furnished for furnace and the base ring and front of the furnace should be cemented to the foundation, making an air-tight joint.

Warm air pipes and cold air returns should be as short as possible. Sharp turns should be avoided in all pipe runs. Locate the furnace with this in mind. Locate the coal bin and other basement fixtures after the furnace is located. It will pay direct returns in saving of fuel.

Most register manufacturers rec-

furnace or through suitable cold air shoes at base of furnace casing. Wood grills in floor are usually used for cold air returns—see table below. Spaces between joists in basement may be boxed in to conduct cold air to point near furnace, and in this case joists may be boxed with tin or light sheet steel and great care must be exercised to maintain the free area of the pipe served plus about 20 per cent overage, and if the joists are not deep enough for this purpose they must be furred down to the proper depth before boxing in. See table below.

Size Round Pipe.	Area Square Inch.	Size Wood Grill or Equivalent Recommended for Cold Air Return for 10% Overage.	Distance to Fur Down in Boxing 2 Spaces Between 8" Joists to Get 20% Over Capacity as Recommended.	Size Cold Air Shoe Recommended.	Size Cast Iron or Steel Floor Register for Warm Air.
8 in.	50	10x14	.....	None	8x12
9 in.	63	10x14	.....	None	8x12
10 in.	78	6x30	.....	None	10x12
12 in.	113	8x30	.....	None	12x14
14 in.	154	10x30	.....	12x18	14x16
16 in.	201	14x30	2 inches	12x22	16x20
18 in.	254	18x30	4 inches	12x26	16x24
20 in.	314	20x30	8 inches	14x26	22x24
22 in.	380	24x30	10 inches	14x31	22x24
24 in.	452	30x30	12 inches	14x36	24x27
26 in.	531	30x36	16 inches	14x43	30x30
28 in.	616	36x36	18 inches	15x46	30x30
30 in.	707	36x36	22 inches	15x49	36x36

ommend registers that are too small. All registers and grills listed in this catalog provide full free area for the pipe with which we recommend they be used. Our system of numbering side wall registers, combined with our simplified stock, make figuring of jobs easier, materially lessen the quantities of goods necessary for a complete stock, and give assurance of good workmanlike installation with full free areas throughout the job.

Cold air return pipes should total or exceed by up to twenty per cent the total area of basement leader pipes. Return pipes should lead into furnace at base through a pit under

The installer must remember that the more directly his returns lead to the furnace, the better will his results be, and that indirect returns must be larger to compensate for the greater friction in the longer returns. Short returns near inside walls are recommended as more efficient. Great care must be used to make all basement piping tight so that ash dust will not be drawn into the furnace casing. This is very important. Strip all joints in both cold and warm air pipe and in furnace casing with asbestos paper. Use galvanized iron, well lapped and nailed, in boxing joists. Be sure your job is air tight throughout.

Can a Good Furnace Installation Job Be Done in Six Room House for \$149.50?

Many Installers Maintain That It Is Impossible to Make a Profit at That Figure

IN the following letter an Indiana furnace installer, who has built up an enviable record for good work, and as a result has also

been able to put quite a little by of this world's goods, asks that someone explain in detail how it is possible for anyone to install a

furnace that will render reasonable service, give sufficient heat and last more than a few years—for \$149.50, and make a fair profit.

We do not know that it can be done, nor will we say that it cannot be done, and we shall ask some of our subscribers who may have learned the secret to pass it along, because if it is possible to do such a thing the furnace industry is entitled to know about it. Here is the letter:

TO AMERICAN ARTISAN:

In reading the article in your issue of November 29th and the comment of "Pertinent" in your issue of December 13th, we cannot but suggest that "wonders will never cease," and are sending you a copy of an advertisement appearing in the *Louisville Times* of December 11th for the consideration of those who may be interested in the puzzling and little understood methods by which various and sundry installers carry on "engineered" installations of furnaces.

We should like while this question is up, to be able to learn the "engineering" problem of "analyzing" how the problems of figuring the material, labor and overhead with profit can be done by any one if any attention is given to consideration of the National Code, which, it would seem to us, ought to be given by all reputable people engaged in such work.

We do not by any means intend to say that there is not a "Pot of Gold" to be had from such installations, but the puzzling part is to know how it is "engineered" to realize even a consistent profit, or even pay for the material and the services of competent "engineers" and workmen, so that the work can be done that buyers can "buy the installations without fear of regret."

Will not some mathematician or "engineer" do the trade the favor to explain the methods by which such installations can be "engineered" so that "buyers can buy without regret"? INQUIRER.
Indiana.

How Can It Be Done? BOMAR-SUMMERS' SPECIAL FURNACE



The Six-Room
Size Installed
Complete
ONLY

\$149⁵⁰

HERE'S a furnace you can buy without fear of regret—we fully guarantee it, as well as the quality of the materials used in its installation. The small price of \$149.50 covers entire cost (for the average home of six rooms) of furnace and installation, including floor registers and cold air intake from first floor. Other sizes at proportionate moderate prices.

\$20 First Payment On Club Plan
Balance \$12 a Month

A Phone Request Will Bring Our Heating Expert
to You Immediately

City 8500

—PHONES—

Main 93

BOMAR-SUMMERS
HARDWARE COMPANY

Incorporated

315-317 WEST JEFFERSON STREET

How Do They Do It?

Simple Plan, Recommended by the Paint Industry, Provides for Financing Contracts

Furnace Installers and Sheet Metal Contractors Can Apply Same Idea to Their Contracts

IN THE following letter from Ernest T. Triggs, of the "Save the Surface" Company, a plan is outlined providing for the financing of painting contracts and paint sales to home owners.

This plan, it appears to us, would be applicable to the financing of furnace installations as well as contracts for sheet metal work, and for that reason we are glad to give the letter in full to our readers.

The plan follows:

"Painter finds property owner who wants to paint and pay for same over a period of time.

"Painter submits estimate including in it an additional 10 per cent.

"If satisfactory, property owner signs an application for a loan, agreeing to pay 20 per cent or more in cash to the painter on completion of the work and the balance to the finance company in ten equal monthly installments with interest at 6 per cent per annum on the unpaid monthly balance.

"The application is submitted to the finance company which investigates the credit of the property owner and accepts or rejects the loan. A charge of \$1.50 is made by the finance company for each credit investigation.

"Painter is advised and if application is accepted proceeds with the work.

"On satisfactory completion of the work the painter renders bill to the property owner, who pays to the painter the cash payment agreed upon.

"The painter mails the bill showing amount paid and balance due to the finance company.

"Finance company pays the painter the amount still due, less a discount of 10 per cent. No reserve is held by the finance company.

"The painter has received payment in full for his services.

"The agreement is a direct obligation on the part of the property owner to pay the finance company. Neither the painter nor any agency of the paint and varnish industry becomes an endorser or guarantor or in any way contingently liable for payment of loan made by finance company to the property owner.

Method of Financing the Purchase of Paint and Varnish Materials by Property Owners.

"Where the property owner desires to purchase paint and varnish materials from a retailer and pay for same on the installment plan, the method followed by the dealer is much the same as that followed by the painter, but the terms are slightly different.

"The dealer adds a carrying charge of 6 per cent to the sale price of the materials.

"The property owner agrees to make a cash payment of 20 per cent or more at the time of the delivery of goods, and agrees to pay the balance to the finance company in equal monthly installments of not less than \$10 per month. No interest charge is made on the unpaid balance.

"No charge is made to the dealer for credit investigation; but the property owner should be known as a proper credit risk and carry the recommendation of the dealer. The dealer, however, does not become financially responsible for payment to finance company.

"On notification of receipt of goods by property owner, the finance company pays the dealer the amount still due, less a discount of 10 per cent. No reserve is held by the finance company.

"Under this plan the dealer, who receives cash, is selling goods at a cash discount of approximately 2 per cent inasmuch as 2 per cent is the difference between the 6 per cent added to the total sale price and the discount of 10 per cent of the unpaid balance charged by the finance company."

Elliott Tells Why Warm Air Furnaces Lost Out in the City of Brotherly Love

Poor Work and Recklessly Exaggerated Claims Made Competition Easy for Other Heating Systems

R. S. ELLIOTT makes some very plain statements in his review of the warm air furnace situation in Philadelphia which appeared in the October bulletin of the roofing, metal and heating engineers of that city, as follows:

1924 or 1900?

Do you remember when furnaces were furnaces in Philadelphia? Sure! There was good money in the heater game in those days, and warm air heating was a big source of income to every sheet metal man. And then hot water heat gradually crept in and the heater business dwindled slowly away.

We all know that little story, but why did this change take place? Is hot water heat any better than a well-figured, properly installed re-

circulating warm air job? No! And not near as good! Then why has hot water become so popular? Why are people throwing out their furnaces to install an expensive, cumbersome hot water system?

Why? Because twenty-five years ago about 99 per cent of all warm air heaters were installed counter to all laws of warm air heating. Operation work, the curse of the warm air heating industry, put in thousands of furnaces, each one too small for the job. Seven-inch pipes were run to an 8x10-inch register in each room, regardless of the size of the room, and a 3x8 stack sufficed for all rooms on the second and third floor. A few holes were cut in the bottom of the furnace casing or, perhaps, a steel grill was used

and the job was finished.

Some rooms never got heat from the registers. Outer rooms were cold on cold days, but every room got a cloud of dust every time the furnace was tended and the ashes taken out. Cheap steel drums that leaked gas and were constantly wearing out seemed to be the vogue.

Pipeless heaters that were guaranteed to heat anything and everything, regardless of the laws of warm air travel. Installation done by guess and by God! All these made every furnace owner a prospective customer for the hot water heating system merchant.

Hot water properly figured and well installed gave heat so that every room in the house was warm. There was no cloud of dust every time the heater was shaken. No drums to leak gas and be repaired every few years. Why shouldn't people who could afford it put in hot water heat?

But! In the past few years by tests and experiments we have learned a few things about warm air heating. We have learned how to figure a job, so that we know what size leader and what size stack to use. We discovered the base-board register, real insulating asbestos, and the principle of long cellar leads, etc. We found that cold air taken from the inside practically eliminated dust and made the warm air furnace the most efficient heating plant to be had.

In some sections of the country warm air merchants have been quick to adapt themselves to these changes, and in those localities warm air heating has flourished and hot water heat is only used where warm air is impractical. Those dealers are still reaping a rich harvest from their heater work.

Here in Philadelphia people are just beginning to learn about the new warm air system. They are visiting homes where a real warm air job has been installed and they are beginning to question the hot water system.

That is where the heating situation lies, but where, Mr. Dealer, are you?

Are you working in 1924 or are you back in 1900? Do you know how to figure a real warm air job?

Can you place your stacks properly and get the maximum out of your heater?

Are you up to all the new tricks in the warm air heating or are you still doing work by guess and the rule of thumb?

The opportunity to learn the warm air dope lies in your own Philadelphia Association, the Philadelphia Warm Air Heating Chapter.

* * *

Editor's Note: The situation as described by Mr. Elliott is by no means a unique one, but happily there is in every state some warm air furnace installers who have always stood for efficient work and whose installations stand today as monuments to their integrity and foresightedness.

The warm air furnace industry is on the up-grade, and the credit is due both to the conscientious, efficient installer and to the National Warm Air Heating and Ventilating Association which has spent many thousands of dollars in the research work that is being carried on at the University of Illinois, under the direction of Professor Willard.

In this connection let us state this once more:

Every furnace installer who attended the dedication of the Research Residence at Urbana, Illinois, on December 2 and 3, was repaid many times over for the cash spent on the trip by the inspiration and definite information he received there as well as the hospitality he enjoyed.

Leon A. Selman Appointed Advertising Manager of Fox Furnace

The Fox Furnace Company, Elyria, Ohio, manufacturers of the Sunbeam warm air furnace and cabinet heaters, has appointed Leon Selman as advertising and sales promotion manager.

S. W. Hetherington has resigned his position with the Fox Furnace Company to accept a position with

the Anchor Stove & Range Company, New Albany, Indiana, as advertising manager.

New Peninsular Warm Air Circulator Is Placed on Market

Forty years ago the Peninsular Stove Company made a heating stove called the "Circulator." It was a good piece of goods of its kind, gave fine service within its limitations—and compared with the stoves that are in use today it was something of a piece of art, just as the dresses worn by the ladies in 1885 no doubt were regarded as



Peninsular Circulator

fine expressions of the dressmaker's art of that time.

But times have changed, and so have ideas and knowledge of heating—and there is a wide step between the 1885 "Circulator" and the 1924 "Circulator" which has recently been placed on the market by the Peninsular Stove Company, and which is shown in the accompanying illustration.

The exterior of this new Peninsular Warm Air Circulator is made of vitreous porcelain, on American Ingot Iron, easily cleaned with a dry cloth. The finish is in walnut.

Air is drawn off the floor, passes between the heater and outer casing and out at the top heated to the

proper degree. A moisture pan in rear of circulator insures that air in room will be of the proper humidity.

Dealers are invited to write to the Peninsular Stove Company, Detroit, Michigan, for further information.

Warm Air Furnace Advertisement Must Make Health and Economy Basis of Its Appeal

Average Home Owner Primarily Interested in Making Himself Comfortable — Work on This Desire

THE best authorities on advertising agree that to produce interest in the quickest possible manner, the advertisement should picture the benefits which the prospective owner can obtain by investing in the article advertised.

If you are advertising warm air furnaces, tell the man to whom you want to sell how his health, that of his wife and children will be benefited by heating his home with warm air instead of steam or hot water.

Take a look at the accompanying advertisement, taken from the *Kittanning, Pennsylvania, Leader-Times*. As an advertisement to be read by the installer, fine! With the exception of a few impossible and meaningless statements such as, "fifty per cent greater capacity,

higher — straighter — heavier and more durable," it is well done. The ad has excellent balance and all parts of the furnace are enumerated.

But as an advertisement, as we take it to be, intended to interest home owners in Premier warm air furnaces, a much better use could have been made of the thirty-eight square inches.

The furnace installer who kids himself into believing that the average newspaper reader is going to wade through the facts given—and we openly admit the profuse use of meaningless comparatives—does not understand much about human psychology.

Why not take the idea presented in connection with the humidifier, for instance, and show the home

owner what it means in safeguarding his health during the winter.

The advertisement must tell something of interest. The details such as those presented on the ad shown should be left to the salesman after the home owner has been interested in safeguarding his health.

The lady of the house is interested in keeping the dust off the mantelpiece, yes; but she is far more interested in good health.

Additional Contributors to Fund for Warm Air Research Work at Urbana, Illinois

On page 23 of the December 6th issue of *AMERICAN ARTISAN* there appeared a list of names of furnace and accessory manufacturers. That list is composed of those who contributed to the fund for the erection of the Research Residence at the University of Illinois, in Urbana.

In addition to the firms mentioned at that time, the following are contributing to the fund from which are defrayed the expenses of the Research Work that has been carried on at the University of Illinois during the past five years under the direction of Professors Willard, Kratz and Day:

Andes Range & Furnace Corporation.

Bovee Furnace Works.

Domestic Appliance Company.

Dowagiac Manufacturing Company.

Fuel Saving Heater Corporation.

William Highton & Sons.

Homer Furnace Company.

S. M. Howes Company.

Inter-Ocean Products Company.

Marshall Furnace Company.

Miles Furnace Fan Company.

Monitor Furnace Company.

Payne Furnace & Supply Company.

Phillips & Buttorff Manufacturing Company.

Schill Brothers Company.

R. J. Schwab & Sons Company.

Stanton Heater Company.

Success Heater Manufacturing Company.

Thomas & Armstrong Company.

<p>Direct Draft Damper Eliminates smoke trouble when firing.</p> <p>Feed Section Deeper and heavier. Provision made for water heater on either side.</p> <p>Fire Doors Two doors—fitted and drilled to stay tight. No bent hinge pins.</p> <p>Humidifier Five gallon capacity. Evaporates 9 to 12 gallons of water every 24 hours.</p> <p>Lever for Shaking Grates See Front View. A child can operate it. No ash dust in your face.</p> <p>Ash Pit Larger ash capacity. Holds water. Eliminates dust and aids combustion. Has square corners at the back.</p>	<p>AN ALL CAST IRON HEATER WITH REAL CASING CAPACITY</p>  <p>PREMIER Dowagiac, Mich.</p> <p>WEIGHT WHERE WEIGHT BELONGS.</p> <p>See This Furnace at</p> <p>832 Fifth Avenue Ford City</p>	<p>Radiator Larger in diameter. Greater in capacity. Swings to any angle.</p> <p>Casings The largest built. 75% greater air circulation.</p> <p>Combustion Chamber Fifty percent greater capacity. Higher—Straighter—Heavier and more durable.</p> <p>Joints Double flanged. Permanently sealed. Gas tight. —For this feature alone, you should decide on the PREMIER.</p> <p>Fire Pot Deep and straight. Greater fuel capacity. Much heavier and built to last.</p> <p>Grate Rolls on 5 wheels, removes ashes without losing coal. Shake with lever. Duplex center to cut out clinkers.</p>
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Ad Taken From Leader-Times.

Frye Answers Harrison and Imposes New Difficulties Upon Him

Wants Harrison To Show How Moon Mullins Computed the Length of Key Line to the Golden Skoto

FRANK HARRISON'S final salvo, fired through the December 13th issue of *AMERICAN ARTISAN*, struck with such force in Tullahoma, Tennessee, and his aim was so deadly as to completely demolish the home of our worthy confrere, Harry Frye.

It so happened that the tragedy occurred in the wee, small hours of the morning when Mr. Frye, like all law-abiding citizens, was safely tucked away in the folds of peaceful and righteous slumber, dreaming perhaps of his good fortune with the giant and Moon Mullins, to the probable disadvantage of little Kayo.

The shock of the impact awakened him to the grim realities of life, however, to find himself pinioned beneath the timbers of his fallen dwelling, with the cold night wind whistling through his thin pyjamas.

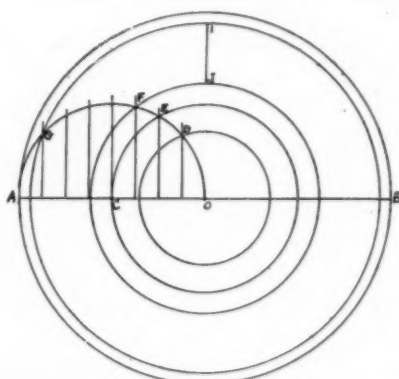
In gazing about, his eyes fell upon the well known brick lying beside him, unscathed by its long and rapid flight, and smiling up at him with sardonic malice. The thought thereupon immediately dawned upon him that Mr. Harrison was responsible for his difficulties.

About that time the Editor of *AMERICAN ARTISAN*, who was peacefully turning the dials of his radio, caught the following sounds emanating from the direction of Tullahoma, Tennessee:

To *AMERICAN ARTISAN*:

In the beginning of this series of articles I was little concerned in my prospects for being classed as a literary genius. But the printing of my "punk" stuff by *AMERICAN ARTISAN* created a desire to attain this goal and eventually become "Who's Who" in the random notes by Sidney Arnold.

But you writers who "sling such a wicked finger" spoiled my chance in the beginning by being antagonistic to my work and by placing me on the defensive. You made a concerted effort to get my goat. The fact is, however, that I enjoyed your efforts and your stuff directed at me, and my limitation in the literary field only added zest to the necessity of answering you. It remained for the editors of *AMERICAN ARTISAN* to get my goat, which they did with a vengeance.



Describing Frye's Problem

I now see the folly of matching my wits against a horde of scribes who are possessed of better facilities for writing than I, though apparently knowing less of the subject written about.

If I have unintentionally placed myself before you as a literary genius or an expert on solving all the problems of the sheet metal craft, I beg your pardon, and wish to correct this impression. In the beginning I was only desirous of contributing my little bit to help you in your difficulties.

If I had considered myself an expert along the lines mentioned, I would have applied for a position on the editorial staff of *AMERICAN ARTISAN*. Ordinarily I am neither an Irishman nor a quitter, but I see the futility of a fight with the edi-

tors. You have me at your mercy.

I confessed to being whipped to a frazzle and yet you hit me when I am down. Is this more ethical or admirable than throwing a brick at a combatant that had taken to his heels? If it is, then I am for adopting this code of ethics, and I will now throw my last bricks and run like h—.

As I said before, the carnival will make no application for a return engagement; but I am sure *AMERICAN ARTISAN* will grant me the privilege of meeting my obligations and winding up the affairs of the show. Hence, in the future, the problems that are offered in *AMERICAN ARTISAN*, and not directly to me, I will take pleasure in helping you with them if I can.

I will now take up the unfinished work of the Archaeologist, Mr. Harrison. In digging around in this ancient city of mound builders, Kayo also found another trinket which he valued so highly that he would not show his find to Mr. Harrison, but straight away brought it to me. I cleaned it and found that it was a brass triangle with an inscribed square on its face and a hieroglyphic inscription on the back, which I deciphered as follows: The side of the greatest square inscribed on my face is six and six-sevenths inches and my hypotenuse is twenty inches. He who computes (not measures) the length of my other two sides holds the key to the division of the Golden Skoto.

Deciphering this message was fairly easy, and I decided that the golden Skoto was the golden circular shield found by Kayo. I called in Moon Mullins and explained my possession to him.

"Eureka!" he shouted, "then we have it." He forthwith solved the

problem and gave to me the length of one side of the triangle.

I then drew the diameter across the golden shield, and set my dividers to the length of the side given me, and it stepped just eight even steps from the center of the shield to the circumference. Then with my dividers set on the center of the radius I struck a semi-circle and erected lines from six points of the division, cutting the semi-circle at d, e, f, and g.

Then setting one leg of my divider on the center of the Skoto, I began to strike a few circles through the points in the semi-circumference that I had just made. The first circle through d gave to Moon Mullins his medallion, which was the first eighth of the gold. The next circle through e gave to the giant his ring, which was the second eighth. The next circle through f gave to Kayo his bar with which to roll his hoop, this being the third eighth. Then I struck the next circle through g and it gave to Kayo his hoop, the fourth eighth. This tickled Kayo and he compared me to Santa Claus. Then I could readily see that I had four eighths left to be divided between the giant, Moon and myself. Now one more little line, ij, completes the division, giving to Moon and the giant one more eighth apiece and leaving two eighths for myself.

Now that Moon, Kayo and the giant, my only friends, have so materially assisted me in the division of the gold, will Mr. Harrison's friends, the printers,* be so kind as to lend him the type case and assist him in deciphering the hieroglyphic inscription on the back of the brass triangle?

Show how Moon Mullins computed the length of the line which was the key to the division of the golden Skoto. But in the event that Mr. Harrison has lost interest in archæology, he may give us a masterpiece in literature showing me up for thirty cents with the three rubbed out.

In the end I am as little con-

cerned as in the beginning. In return for my fair division of the golden shield the giant gave me his seven-league boots. I am running now, and according to the newest code of ethics you are at liberty to throw as many bricks as you like, for I do not fear that they will ever touch me, for where I have been, I "ain't."

*Alas, Mr. Frye! That cannot be, for the reason that those same printers are no longer doing our work. Perhaps, by the exercise of *extraordinary* diligence (though our limited knowledge will impede

us greatly) we may be able to explain the situation to our new printers sufficiently to win their confidence and sympathy, in order that Mr. Harrison may not experience any delay in getting the implements necessary to meet your demands.

With apologies to Mr. Sidney Arnold.

Little drops of printers' ink,
Linking gems of thought,
Made the dear old editors wink,
And show me up for naught.

HARRY FRYE.

Tullahoma, Tennessee.

World Demand for American Tin Plate Rapidly Increasing

Department of Commerce Show 300 Million Pounds to Have Been Exported in Ten Months Ending in October

WORLD demand for American tin plate, which accompanies the building boom in other parts of the globe, illustrates the growth of the foreign recognition of the manufacturing industries of the United States. Figures of the Department of Commerce show that our exports of tin plate in the ten months ending with October total 300 million pounds against 206 millions in the same months of 1923. The figures of the ten months of 1924 suggest that the total movement out of the country in the full year will exceed 325 million pounds against 278 millions in 1923 and 171 millions in 1922.

It is only a comparatively short period, says the Trade Record of The National City Bank of New York, since the manufacturers of the United States began to supply the home or foreign market with this important product in which they are dependent on raw material brought from other parts of the world. The fact that the tin required in the industry could only be had in foreign countries, chiefly on the opposite side of the globe, deferred consideration of the establishment of the tin plate industry at home until our own imports of tin plate reached enormous figures,

the total quantity imported running above one billion pounds in 1891 with a value of \$36,000,000.

Then the American manufacturer set himself seriously to consider the advisability of bringing this important raw material from the other side of the globe, and in 1892 he astonished the country by producing 42 million pounds of tin plate and in 1903 the output had advanced to over one billion pounds and by 1921 had crossed the three billion pound line.

Meantime the world had recognized the value of this new American product manufactured from the tin brought from other countries and by 1900 we had begun distribution to other parts of the world, the total exportation of 1900 amounting to approximately a quarter of a million pounds, advancing to 26 millions in 1910, 106 millions in 1914 and seems likely, as above indicated, to exceed 325 millions in 1924.

Where does it go, this new product of the American factory? To all parts of the globe and especially to those parts from which the raw material, tin, is drawn. The record of the first ten months of 1924 show distribution to a dozen principal countries and many smaller

ones, especially including the sections of the world from which the tin used in its manufacture is brought. Most of the tin which we import comes from the Malayan Peninsula, the Dutch East Indies,

Hongkong, Australia, China, and in recent years, Bolivia, which is now supplying large quantities of tin ore and pig tin; and the latest detailed record of exports shows tin plate sent to practically all of the coun-

tries and colonies which supply us with the raw material, tin, which is combined with American iron and steel in manufacture of the tin plate produced and exported from America.

Sheet Metal Cornice and Educational Publicity Committees Get Into Action

Paul L. Biersach Renders Report of Activities at Meeting Held in Cleveland, December 1

HERE is some real news about the important activities of sheet metal men who give of their own busy time in helping to make conditions better for their fellow contractors.

The following report is from the polished pen of Paul L. Biersach and has to do with the matter of resurrection of the Sheet Metal Cornice:

Responding to the call issued by Chairman George Harms, the Sheet Metal Cornice and Educational Publicity Joint Committee of the National Association of Sheet Metal Contractors, met at the Hollenden Hotel, Cleveland, for the purpose of receiving reports from its members as to what they have accomplished towards the completion of the preliminary work on the booklet on "Sheet Metal Cornices," assigned to them at the August meeting at Chicago; also to listen to and receive further suggestions.

To the roll call, the following members of the Committee responded: Paul L. Biersach, Milwaukee, Wisconsin; Paul F. Brandstedt, Washington, D. C.; William A. Fingles, Baltimore, Maryland; George Harms, Peoria, Illinois; Harry C. Knisely, Chicago; Louis Luckhardt, Pittsburgh; A. E. Riester and George Thesmacher, Cleveland, Ohio.

Messrs. Scott and Teschmacher of New York, representing part of the Trade Development Committee, were also called into this conference by our genial Chairman, George Harms.

The first order of business was a voluminous report by Chairman Harms as to his activities. He stated that he had written over five hundred letters since our last meeting, that he was successful in obtaining cooperative responses from sixty-two out of ninety-four locals and from eight out of nineteen state associations. He promised to continue this splendid work until he has heard from all of our associations.

Will those associations who have not been heard from kindly get into immediate touch with Chairman Harms so that he can complete his task? He will appreciate this and be thankful to them.

Messrs. Brandstedt, Scott and Teschmacher, who have in charge the sketches and specifications for our booklet, submitted a considerable number for criticism and supervision and after careful study of the same, enough selections were made from those shown which are best adapted for this particular project.

Harry C. Knisely volunteered to send to this Committee a very interesting subject on a cornice which was constructed and completed not long ago at Chicago.

A. E. Riester suggested that the New York Teschmacher stay over in Cleveland to confer with their architectural and drafting department on several very interesting cornice subjects. It is needless to say that the Committee appreciated both of these gentlemen's cooperative spirit in this work and it was

unanimously voted upon and carried to embody the same in our booklet.

General discussions were then entered into on various matters pertaining to the size, number of illustrations, specifications, general make-up, etc., of our booklet by Messrs. Luckhardt, Fingles, Brandstedt, Riester, Knisely, Biersach, the Cleveland's Thesmacher, with the result that it was unanimously decided and agreed upon that the subsidiary committee who will have charge from now one of the completion of the balance of our assigned task and consisting of Messrs. Brandstedt, Riester, Cleveland's Thesmacher, Scott and New York's Teschmacher with the Chairman "ex officio," should be and are herewith authorized to complete the work required for the booklet and have five thousand copies printed, or more if necessary, with as little expense as possible and have them ready for distribution as soon as convenient after January 2, 1925.

It was also deemed advisable to distribute these booklets to architects, engineers and our membership only, and the latter should consider this as one of the many privileges and benefits sheet metal contractors of the industry derive through holding a membership in the national organization.

Discussions then arose as to the future work in store for this committee, but it was deemed advisable to let these matters discussed rest in abeyance until the Cornice Book-

let has been disposed of in a satisfactory manner.

The Secretary reported that quite a few contestants sent in their "Essay on the Rehabilitation of the Sheet Metal Cornice" and the matter of awarding the prize was left to the Chairman and Secretary for disposition, who promised to give the same their prompt attention.

It was furthermore requested that each and every one present submit a story on the "Preface" of our booklet to be placed into the hands of the Committee, they to make such selections therefrom best adapted for our booklet in compiling the same. Also to suggest the title to appear on the cover of the booklet.

It would be ungrateful were we not to mention the splendid arrangements made for this meeting and the hospitality extended by the Riester & Thesmacher Company and the Secretary for the Committee herewith extends our appreciation and many thanks to them for their kindness and efforts in our behalf.

Industrious Health Supervision Pays Big Dividends When Worked Right

Increased Production, Less Claims and Improved Relations Between Employer and Employees Are Some of Results

TO WHAT extent is an employer responsible for the health of his employees? If he assumes responsibility for it, does the expense involved pay a sufficient return in financial profits? If it does not, is it good business? These are questions that confront the employer who looks with skepticism upon the rapid increase in industrial health work and so hesitates to establish it in his own shop or office.

To a certain extent most employers nowadays feel responsible for the health of their employees. That is, for workers who operate dangerous machines or spend the day in an atmosphere laden with mineral or textile dust, safety devices that minimize the danger of preventable accident or illness are installed as a matter of course.

Industrial health work is not merely a sentimental and unnecessary fad, it is an investment. Its success is a sound business success. In this respect, industries that have practiced it the longest are the greatest enthusiasts. While it is difficult to show that it pays large cash dividends, those that do accrue from it are of a more subtle but equally valuable nature. For example, the worker who receives free medical advice and attendance, and possibly nursing service, is loathe to leave his job. In fact, he may even prefer his old job to a new one at a higher wage, but with less security in times

of illness and other contingencies.

Other returns from health supervision which have no financial equivalent are, increased production (due to a more coöperative spirit and improved health standards); increased efficiency and decreased operating costs (due to fewer occupational "misfits"); diminished unjust claims for compensation (due to careful recording of the physical condition of applicants and employees); improved home and community conditions (due to health education and other measures); improved relations between employer and employee (due to the factors of community interest and mutual advantage).

Industrial executives who have had the greatest experience with programs of health supervision are agreed that such results are at least as important as those that show on the books as profits in dollars and cents, although it is generally conceded that the maximum benefits cannot be realized in less than from three to five years. The New York Telephone Company, Metropolitan Life Insurance Company, and the Dennison Manufacturing Company, who have been doing industrial health work for more than a decade, are among the organizations which, by a steady expansion of their program, prove their belief in its efficacy. One of the strongest arguments in favor of industrial health

work is the experience of the National Cash Register Company. This corporation has reduced the average loss of time by employees on account of illness to 13 hours per year as contrasted with the United States Public Health Service survey which showed an average for the country of seven days.

The degree to which the work should be undertaken depends largely on the type of industry and its location. For example, mining companies whose workers live in remote communities far removed from social contact or medical assistance, not only care for the miners themselves, but their wives and children.

Among the chief advantages of an industrial health service is the periodical physical examination. Investigations of one large life insurance company indicate that such examinations have a potential life saving value of \$30 each.

One of the insidious diseases that periodic medical examinations help to control is tuberculosis. The National Tuberculosis Association and its affiliated organizations have for a number of years been ardent supporters of the industrial health idea, as well as periodic physical examinations for both worker and employer.

To carry on this work as well as other phases of the campaign, the seventeenth annual Christmas seal sale will be held throughout the country during December.

Patterns for Double Inclined Chutes Are Easily Made with Correct Procedure

Kothe Shows Layout of Plan Arranged to Save Time in Their Construction

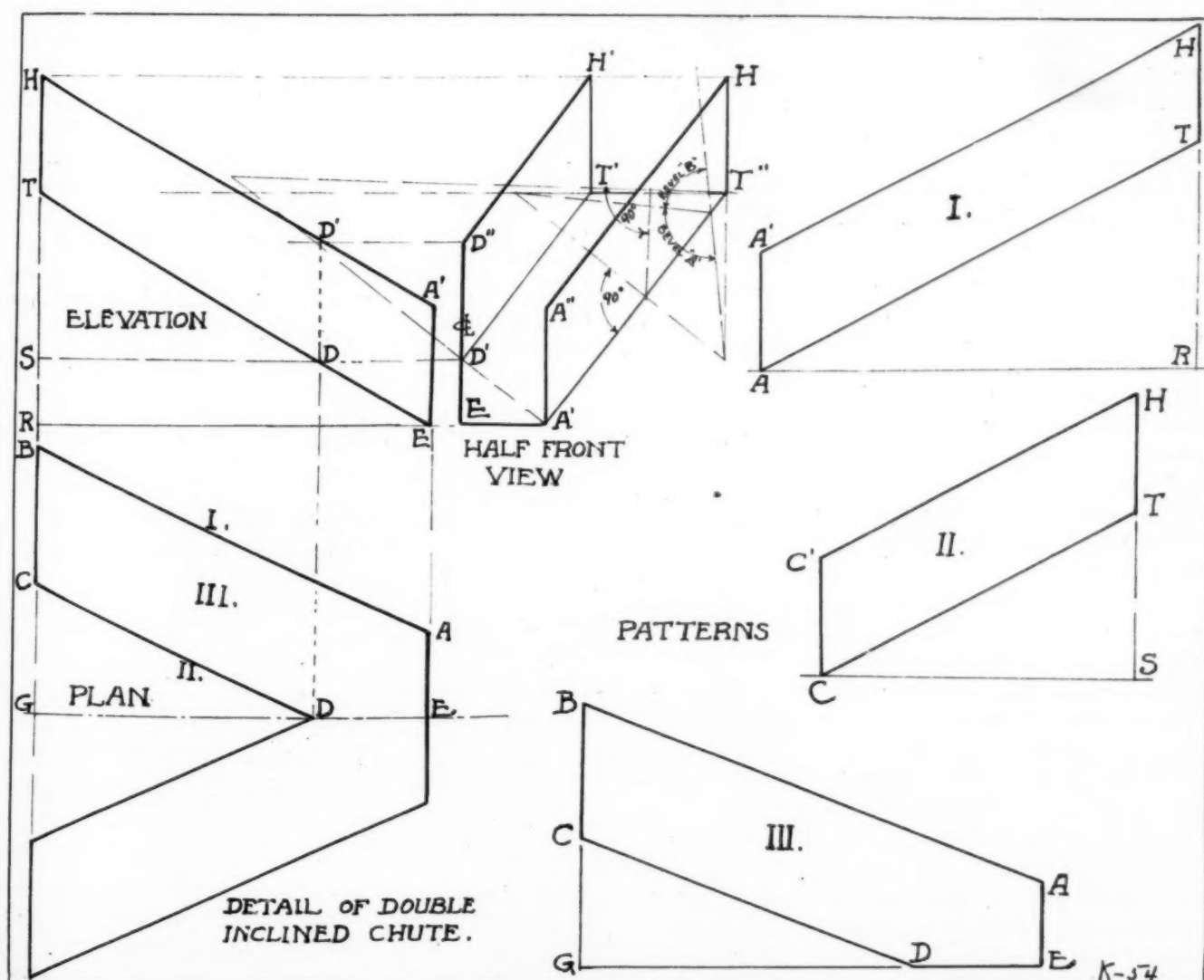
SHEET metal tradesmen who work outside and then come into the shop occasionally see a peculiar piece of work like the chute shown. Such men begin to feel that the work looks rather simple, and, indeed, it is, although if they are asked to perform the layout they would not know where to start. These outside workers have a great deal to learn about shop work, and most of them do not give it much thought, feeling that they always can work outside, even though they lose several weeks in the summer and

several months in the winter—still they know more about roughing in the work than anything else and that is what they have to stay with.

Such philosophy is very good for young men, but when a person gets to be 40 or above, and the extreme weather conditions have stiffened the bones to where it is difficult being chipmunk or something like that, in climbing in and handling the work, they begin to doubt the wisdom of their former actions, and then we hear that the older fellows never have a chance. The younger

fellows are coming in and taking the work away from them, and that the older fellow must content himself in getting work only when there is an emergency of rush jobs, or a premium on workers. Even coal chutes made out of No. 12 gauge iron or grain chutes and the like of that have their value in giving an older person an opportunity in the shop.

To lay out a fitting such as our plan in elevation shows, we first draw a center line as G-E of plan and then place the angle of branch as G-C and G-B, where C-B is the



Patterns for Double Inclined Chute.

width of chute. This distance is then carried down to the length as G-E and E-A. We then construct the elevation where R-E corresponds to G-E of plan, and R-T is the height of the back, while H-T is the height of the sides. These lines are then carried down parallel to finish the elevation. The division plate B of plan is carried up as G-D' of elevation.

The half front view is not necessary only it gives another position in the projection of the problem and it also shows how the angles between the bottom and side plates are formed, as bevels "A" and "B." This, of course, is a small matter, and rarely needs treatment as a little bending to answer the purpose. In setting off the patterns for I-II-III, which is the outside, the throat and the bottom, we pick the side line A-B of plan and set it as R-A in pattern I. Then we raise the height R-T as R-T of elevation and draw line T-A. After this we add the height of elevation as H-T and draw a line H-A' parallel to T-A and that gives us our pattern. For pattern II pick the girth line C-B of plan and set it as C-S in pattern. Then pick the height as S-T of elevation and set it as S-T in pattern and draw line T-C. Next add the height and draw line H-C' and this pattern is finished. Now to set out the bottom III pick the elevation lines T-D and set as G-D; next pick T-E of elevation and set as G-E. Then pick line G-C from plan and set as G-C in pattern and draw lines as shown which gives the pattern for the bottom.

This is all there is to the patterns for a chute of this kind, although its size would govern how to make it, whether it would be advisable to make all three patterns in one, thus adding pattern I to the line B-A and adding pattern II to the bottom line C-D. This can be easily done if the chute is not too large and then all that is required is to bend up the edges. At other times edges are allowed on the bottom and flanged up on the sides; other times an angle iron is laid in the corner and riveted to both the side and the

bottom, while at still other times the corners can be welded. So there is a variety of construction that can be followed and it is largely the size of the chute that governs how best it should be made.

Chutes of this kind are also met with in ice cream plants, also dairy plants, ice manufacturing plants, wholesale house conveyor systems and many other places. Designs may vary, but the principle of application holds good for most all such types. Some are made of 16 gauge iron and others are made up to number 10 gauge iron, so that in either case, the only difference is in the extra strength required in working up the metal while the method of laying out is identical. Then, too, where heavier metal is worked, equipment is generally at hand to perform this work, as the bending and the rolling as well as the holding it in place by means of overhead trolleys; so that men once accustomed to working heavier metal are more taken up with it than they are the very thin metal.

Wife of T. P. Shean Has Passed Away

It is with regret that we announce that Mrs. T. P. Shean, wife of the president of Shean Sheet Metal Window Company, passed away a few days ago, at their home, 1715 East 67th Street, Chicago.

Mr. Shean has long been one of the prominent men in the sheet metal trade in this section and his many friends will sympathize with him in his great loss.

Christmas Vacation Is Good Time for School Repairs

Schools this year will be closed from December 24th to January 5th for the Christmas-New Year holiday season—nearly two full weeks.

During that period a lot of repair work or remodeling could be done. Make it a point to see the school board members in your district at once.

"Invisible Joint" metal ceilings and walls could be easily erected

and decorated during this space of time. It is not too late to get action on this, for the Milwaukee Corrugating Company is prepared to ship metal ceilings from stock on the same day orders are received.

Roofing repairs, too, can be handled nicely during this holiday vacation period. Eaves trough, conductor pipe, metal roofing, repairs, etc., all could be done now.

Many school boards have previously appropriated the funds to carry out plans of this sort and are merely waiting for a convenient time to start the work. Get in on this at once—the very day you read this—and you may be able to land an extra job or two.

Real Reminders Are These Souvenirs of Jule Geroch

Julius Geroch believes in presenting the sort of souvenirs to his customers that will keep them remembering that he is in the business of making sheet metal ornaments, and this year he is sending out a calendar the top part of which is a copper plaque showing a fine old Indian head in half-relief, also blotters the upper portion of which has the inscriptions, "Merry Christmas" and "Happy New Year" "from Geroch Brothers Manufacturing Company." The blotter tops are also of stamped metal, the lettering being of the embossed order.

President Candler Appoints Detroit Sheet Metal Con- vention Committees

President Wallace W. Candler, of the Detroit Sheet Metal & Roofing Contractors' Association, has appointed the following committees to take care of the state convention which is to be held in Detroit the later part of February or the first of March:

R. C. Mahon, General Chairman.

Reception — William Sullivan, Lewis Busch, Chris Young, Miles Hull and Hugo Hesse.

Hotel Reservations—A. M. Basman, J. C. Stewart, Louis Oehring,

Robert Candler and Jacob Reis.

Entertainment—A. J. Berschbach, William Busch, J. Brodie, A. M. Basman and Roy Drouillard.

Publicity—F. D. Robert, Frank Dempsey, A. G. Marx and J. G. Hartge.

Financial—A. F. Pudrith, Charles Raymo, A. J. Berschbach, William Busch, A. M. Basman, Chris Young and William Ehmke.

Interesting House Organ Is Published by Makers of Toncan Metal

A monthly publication of eight pages devoted to the boosting of sheet metal in general and Toncan metal, in particular, has been received from the United Alloy Steel Corporation, Canton, Ohio.

Printed on high grade paper, full of fine illustrations of buildings in which Toncan metal has been used and with much useful information in the matter of applying sheet metal, this little magazine should be read with interest by every sheet metal worker who is fortunate enough to secure a copy. "Toncan in Construction and Use," is the name of the publication.



The Memorial Building Which State of Tennessee Has Erected Over the Tailor Shop in Which President Andrew Johnson, Abraham Lincoln's Successor, Made His Living in the Early Days of His Business Career.

Among the articles there is a story about the memorial building in Greenville, Tennessee, which that state has erected over the tailor shop of Andrew Johnson, who succeeded Abraham Lincoln as President of the United States. The sheet metal work on this building was done by Chamberlain Brothers, Greenville.

An illustration of this building



Church Dome of Toncan Metal. No Frame Work Used.

and of the original tailor shop is shown herewith.

In another illustration we show the dome which W. G. Taylor, Leesburg, Florida, built of Toncan metal for the belfry of the Presbyterian church in that city.

This dome is ten feet in diameter and has no wood supports of any kind. It is made of 24-gauge sheets in 16 gores, each dovetailed into the other.



Andrew Johnson's Tailor Shop.

Notes and Queries

School.

From Herman Niederhauser, River Falls, Wisconsin.

Please refer me to a school where I can take a tinner's course.

Ans.—St. Louis Technical Institute, 4543 Clayton Avenue, St. Louis, Missouri.

Wrought Brass or Wrought Copper Spire.

From Fiebrandt Brothers, 158 Schiller Street, Elmhurst, Illinois.

Will you let me know who makes wrought brass or wrought copper spire on octagon base?

Ans.—Gerock Brothers Manufacturing Company, 1252 South Vandeventer Avenue, St. Louis, Missouri.

"Cowboy" Tank Heaters.

From Dalbey and Company, Norwalk, Iowa.

Can you tell us who makes the "Cowboy" stock tank heaters?

Ans.—Mundie Manufacturing Company, Peru, Illinois.

Water-Proof Can Screws.

From H. F. Thompson Boat and Pattern Works, Decorah, Iowa.

Who makes can screws 1¼ and 2¾ inches in diameter, constructed of IX tin, zinc or brass, cork-lined or water-proof?

Ans.—William Vogel and Brother, Brooklyn, N. Y.

Zinc Shingles in Chicago.

From Accurate Sheet Metal Works, 2432 Milwaukee Avenue, Chicago, Illinois.

Can you tell us who in Chicago makes zinc shingles?

Ans.—New Jersey Zinc Company, 140 South Dearborn Street, and Cortright Metal Roofing Company, 538 South Clark Street.

Tea and Coffee Pot Hinges.

From Math. Lauer and Son, Stanley, Wisconsin.

Kindly let us know where we can get tea and coffee pot hinges.

Ans.—Berger Brothers Company, 237 Arch Street, Philadelphia, Pennsylvania, and Plume and Atwood Company, 29 East Madison Street, Chicago, Illinois.

M. E. Klasky Produces Profit Getting Christmas Window Display

Kelley-Duluth Company, Duluth, Believes in Keeping Window and Store Front in Harmony With the Season

THE accompanying window display, arranged by M. E. Klasky for the Kelley-Duluth Company, Duluth, Minnesota, was devoted to cutlery silverware, electrical gifts and radio goods.

The center panel, four feet wide and eight feet high, had a mammoth Santa Claus. The three panels on each side were painted green, red and green alternating, on each of the two largest green panels were placed large red wreaths with electric candles which burned steadily.

Green foliage with red flowers on them were used to put on the finishing touch.

The background rested on a large green platform and the floor was pure white outing flannel sprinkled with artificial snow which glistened in the light.

The merchandise was elevated on pedestals and mahogany boards.

Good business was obtained from this window.

There is nothing difficult or intricate about this window display and yet its makers got business for them.

The staging and background are very simple and at best not expensive to procure nor to put in place.

Prices are marked on some of the goods.

The outstanding feature of the display is the fact that a large number of articles are in plain view, but the window does not appear to be cluttered up. That is where the display maker shows his genius.

Another fact which has contributed greatly to the success of the window displays made by this firm is that their windows are always spotlessly clean. In fact, the entire store front is always kept in harmony with good taste. The little details are considered as important as the larger ones and are given their proportionate attention.

Tourist Trade Is Worth Catering To and Developing

Incidentally, it will pay any merchant to co-operate with his community in developing tourist traffic. There is no community that does not possess something of interest to holiday parties, or that at least does not lie on the pathway to something of interest. Many communities, however, do not realize their opportunities, or what can be done to attract tourists.

Manufacturers should insist upon the utmost flexibility in the relations between the departments. There is nothing that leads more surely to "buck passing" and general inefficiency than departmental lines drawn hard and fast, departmental fences built so high that a man in one department never steps over to lend a hand or to get advice from somebody in another department. Build those fences of chicken wire.



Christmas Goods Window Display Made by M. E. Klasky for the Kelley-Duluth Company, Duluth, Minnesota, and Which Brought In Many Potential Customers.

Indoor work for you this winter

Profitable work, too, selling and erecting Berloy Metal Ceilings. There is nothing complicated about it. We furnish you with literature and complete selling helps.

Erection is easy. Plates are true to size and shape, and we furnish complete erection diagrams with each job.

Beautiful designs, fire-resistance and permanence are so easy to talk about that you have no trouble convincing your prospect.

Write Dept. D-2, and ask us to tell you all about it.

THE BERGER MFG. CO.

Boston

St. Louis

Los Angeles

New York

Kansas City

Dallas



BERLOY

(trade mark)

CANTON, OHIO

Philadelphia

Roanoke

San Francisco

Minneapolis

Chicago

Jacksonville

BERLOY METAL CEILINGS

**Steel Ceilings
Side Walls and Cornices**
Only first quality material used
Many neat designs of character.

Write today for our complete catalog giving descriptions and prices.

THE W. J. BURTON CO.

Junction Ave. and Federal St. and
436 Penobscot Bldg. Detroit, Michigan

Durable Rigid



AEOLUS

Solve the Pure Air Problem

The AEOLUS was designed after carefully conducted experiments and a study of various types of ventilators. It is the result of thirty-five years' experience in manufacturing and selling ventilators.

It has proven a success wherever installed — has pulling power, is sturdy—steady and constant in operation.

Write for full particulars.

ÆOLUS-DICKINSON CO.

3332-3352 SOUTH ARTESIAN AVENUE, CHICAGO

Phone: Lafayette 1862-1863



**Hand-dipped is the best
Galvanized Shingle made**

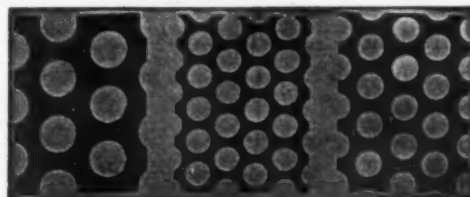
Then there is the other kind stamped from sheets which come already Galvanized.

—We make both kinds and we will be glad to send prices and discounts also our booklet "Concerning that Roof."

CORTRIGHT METAL ROOFING CO.
50 N. 23rd Street, Philadelphia
528 S. Clark Street, Chicago

CORTRIGHT METAL SHINGLES

PERFORATED METALS



All Sizes and Shapes of Holes

In Steel, Zinc, Brass, Copper, Tinplate, etc.

For All Screening, Ventilating and Draining

EVERYTHING IN PERFORATED METAL

THE HARRINGTON & KING PERFORATING CO.

5649 FILLMORE ST.—CHICAGO, ILL. U. S. A.
NEW YORK OFFICE 114 LIBERTY ST.

THE accompanying advertisement of Schroeter Brothers Hardware Company, 810 Washington Avenue, St. Louis, Missouri, is being used by that company to increase sales.

A good representation
of gift suggestions is
shown on this ad.

The method here shown is the only practical method of presenting the goods and suggestions to the public, whether in direct-by-mail circular or in the newspaper advertisement.

For a hardware store advertisement the accompanying representation has a wide diversity of articles which could not in the strictest sense be called hardware. However, they bring in a good profit and the store is not violating any law in vending them.

tion for selling a safety razor in a hardware store than in a drug store. As shaving soap and brushes are the compliments of the razor,

Of course, this is looking at the problem entirely from the service-to-customer point of view.

Viewed from the standpoint of repeat sales, there is even a stronger argument in favor of advertising such goods.

The customer who comes in for a repeat order of dog biscuits is a good prospect for some other household articles and the live salesman is always awake to these possibilities.

There is nothing stronger in salesmanship than the power of suggestion. And the power of suggestion in an advertisement is akin to that of personal salesmanship.

Note how well the various articles associated in use are grouped together—razors, shaving soap and shaving brushes.

The advertisement shown carries a very good layout. It has the power of suggestion to a high degree.

Whether used as a direct-by-mail circular or used as a newspaper advertisement the copy shown is well designed.

The illustrations and prices are well planned to display the merits of

[illegible]

The same is true of dog collars and dog biscuits. If the collar is sold why should the customer be forced to make another stop for the

the goods without misrepresentation.

More customers are lost through misrepresentation of goods in advertisements than in any other way. Don't misrepresent.

Osborn's Stove Pipe and Elbows



Made in our own plant of none lighter than 28 gauge Osborn's Superior Blue Sheets—uniform color blued steel

Osborn's Stove Pipe is carried in stock in standard 28-gauge oiled, Made Up, in 3" to 7" sizes inclusive, in full 24" joints and also $\frac{3}{4}$, $\frac{1}{2}$, $\frac{1}{4}$ and taper joints. Also supplied in 27- 26- and 24-gauge. Nested or Knocked-Down in 24"

joints only, 3" to 7" sizes. Sold in full crates of 25 joints.

Elbows are carried in the same material in either four-piece tight or adjustable and also in one-piece corrugated in 3" to 7" sizes.



OSBORN'S STOVE PIPE AND ELBOWS ARE GUARANTEED

Order yours today

Our new catalog will be sent on request.

THE J. M. & L. A. OSBORN CO.

"Everything Used in Sheet Metal Work"

Superior Ave. & 38th Street

CLEVELAND, OHIO



KESTER
Acid-Core WIRE SOLDER
REQUIRES ONLY HEAT
Sample for Test
Upon Request

CHICAGO SOLDER COMPANY
4201 Wrightwood Ave., CHICAGO, ILL.

H O O K S

ALL KINDS—ALL SIZES
FOR BRICK OR WOOD

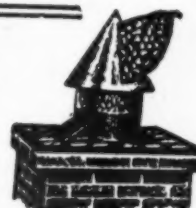
BERGER HOOKS are widely used throughout the trade. They are made of the best malleable iron and are high grade in every respect. Try some on your next job. We can also furnish **SOLID BRASS HOOKS.**

Write for catalog showing complete line
BERGER BROS. CO.
229 to 237 Arch Street, PHILADELPHIA, PA.
Warerooms and Factory: 100 to 114 Bread Street

"THE STANDARD"
VENTILATOR and CHIMNEY CAP

DOES away with high stacks, swings freely in the slightest breeze and positively cures down-drafts. The strongest and most efficient combination to be had. Has no equal for chimney purposes. All jobbers sell them—write your jobber or us for prices and catalog today.

Manufactured by
STANDARD VENTILATOR CO.
LEWISBURG, PA.



Made of
Keystone
Copper Bearing
Steel

Costs no more
Lasts longer
Therefore
Cheaper

CLARK-SMITH HARDWARE CO. PEORIA, ILLINOIS